

**BELOW ARE THE AUTHORS AND ABSTRACTS FOR THE PACIFIC 2000 CONFERENCE IN KAMUELA, HAWAI'I ISLAND.  
IF YOU ARE UNDECIDED ABOUT ATTENDING THE MEETING, CHECK OUT THIS AMAZING LINE-UP!**

**David Addison (University of Hawai'i at Manoa)**

***Traditional Marquesan Agriculture***

The results of fieldwork at Hatihe'u Valley, Nuka Hiva Island, are reported. These include the numbers and spatial distribution of formerly irrigated pond-fields, and the importance of irrigation and taro (*Colocasia esculenta*) in the traditional Marquesan agricultural system. The dietary significance of taro and a chronology for irrigated terrace construction are also considered.

**Melinda Allen (University of Auckland)**

***Historical Ecology of the Kona Field System: Agronomic Development in a Variable Environment***

The "Kona Field System" has figured prominently in discussions of Hawaiian socio-political complexity, ritual elaboration, and agricultural intensification. However, detailed investigation of agricultural sites in Kona has been limited. Analysis of the broad regional context highlights Kona's exceptional environmental heterogeneity and unpredictable dimensions of temporal variability. This spatio-temporal variability is argued to have played a significant role in structuring the region's agronomic history. Recent field work in the upland Amy Greenwell Ethnobotanical Garden of Kealakakua *ahupua'a* provides insights into the construction, function, and chronology of garden architecture in one of the region's most productive localities. Varied lines of evidence reveal a temporal sequence of capital and energetic investments, beginning by least AD 1400 and continuing into the early historic period. From the Greenwell Garden evidence, and other regional data, I suggest that three processes were central to Kona's agronomic history: changes in the scale of agronomic management, agricultural intensification and the implementation of risk management strategies.

**Tricia Allen (University of Hawai'i)**

***Ke Kakau 'ana i ka Wawae: The Tattooing of Legs in Hawai'i***

Early ethnohistoric accounts provide little insight into the ancient practice of Hawaiian tattooing. Despite the lack of information regarding the meaning and function of tattooing, the designs and their placement on the body were relatively well documented. Nearly 60 illustrations exist that show tattooed individuals. It is known that Hawaiians incorporated European motifs into their repertoire of tattoo designs nearly immediately after western contact. This, as well as other factors, have led many to believe that the tattoo, in ancient Hawai'i, was of little cultural significance. Various early observers noted that Hawaiians did choose designs according to "personal fancy", and several illustrations depict what appears to be random placement of introduced design motifs. However, regularities in both pattern and placement suggest that certain tattoo markings were culturally prescribed, and may have served functions within the older social and religious system.

**Atholl Anderson (Australian National University)**

***Polynesian Canoe Technology: An Historical Approach and its Implications***

Most aspects of prehistoric Pacific voyaging have been discussed exhaustively in recent times, but Polynesian canoe technology is relatively under-researched. Aspects of it were taken into account in experimental programs, notably in the construction of *Hōkūle'a*, but since the great survey of Haddon and Hornell the historical details in general have been largely overlooked. This paper draws attention to some essential features of Polynesian canoes as they were observed between the 17<sup>th</sup> and 19<sup>th</sup> centuries and considers the implications of those for conjecture about the sailing and sea-keeping qualities of pre-European voyaging canoes.

**Atholl Anderson (Australian National University), Eric Conte (Université de la Polynésie Française, Tahiti), Geoffrey Clark (Australian National University), Yoshihiko Sinoto (Bishop Museum) and Fiona Petchey (Waikato Radiocarbon Laboratory, New Zealand)**

***Renewed Excavations at Motu Paeao, Maupiti Island, French Polynesia***

Earlier research in the ancient burial ground at Motu Paeao, on Maupiti Island, French Polynesia, by Emory and Sinoto in 1963 had produced a diverse range of material culture of Archaic East Polynesian type, similar to that known from Wairau Bar in New Zealand. Typological considerations suggest that the Motu Paeao burials dated to about the 10<sup>th</sup> century AD, and this age was bracketed by two radiocarbon determinations from the site. In the light of recent radiocarbon determinations indicating a 13<sup>th</sup> century age for Wairau Bar, investigations were renewed at Motu Paeao. These uncovered known burials and one new interment. Determinations on samples of human bone gelatin and marine shell indicate that the site dates to the 13<sup>th</sup> to 15<sup>th</sup> centuries AD.

**J. Stephen Athens (International Archaeological Research Institute, Honolulu) and Jerome V. Ward (Office of Institutional Research, Sweet Briar, Virginia)**

***Prehistoric Colonization of the Western Pacific: The Paleoenvironmental Evidence***

The convergence of multiple lines of evidence from recent paleoenvironmental investigations on Palau and Guam suggests human colonization occurred by about 4500 BP. This date is 1000 years earlier than the earliest accepted archaeological evidence in the Mariana Islands, and at least 1200 years older than recently obtained archaeological evidence on Palau. Beginning about 4500 BP, changes suggestive of vegetation disturbance appear in the pollen records of both locations. These changes appear to be anthropogenic and unlikely the

result of a shift to drier climatic conditions. On Palau, besides the pollen changes, *Cyrtosperma chamissonis*, the giant swamp taro, makes its appearance at 4500 BP. If botanists are correct that this domesticated aroid originates either in New Guinea or the nearby Melanesian islands, the *C. chamissonis* pollen provides firm evidence not only for the presence of humans on Palau at this date, but also their likely Melanesian origins. Furthermore, the documentation of *C. chamissonis* in Palau implies that an important root cultigen of Pacific agriculture precedes the Lapita tradition, with the implication that New Guinea lowland and/or Melanesian agriculture likely has very early origins.

**William S. Ayres (University of Oregon)**

***The Antiquity of Ahu on Easter Island***

Archaeological studies over the last few decades of the ceremonial centers called *ahu* on Easter Island have provided much of the chronological and cultural data available about prehistoric Rapanui culture. Still, persistent questions remain about the temporal and spatial patterning of these structures and complexes. This paper reviews the dating of *ahu* in general and, in light of recent developments in dating methods, addresses the issue of the earlier forms of these structures.

**William S. Ayres, Scott Fitzpatrick, Joan Wozniak and Gordon Goleš, (University of Oregon)**

***Materials for Stone Adz Production on Easter Island***

Improved understanding of the use of basic stone tools is critical for resolving questions about prehistoric technology, production, and social and political organization on Rapa Nui (Easter Island). This paper builds on earlier work involving macroscopic, microscopic, and chemical elemental analysis of archaeological samples of tool-quality basaltic stone to address provenance and distributional questions. Data now available document the distribution of materials from several quarries and show that some prehistoric quarries on the island provided resources for use beyond the local area; these suggest exchange beyond the local or regional land-holding group.

**William S. Ayres and Joan Wozniak (University of Oregon)**

***Archaeology in American Samoa: Malaeloa and Maloata***

Recent archaeological studies done in conjunction with a field school for the American Samoa Community College provide new information on flaked stone technological and distributional patterns in Western Tutuila. Intensive recording of surface lithic materials, coupled with excavation sampling, provides evidence of workshop areas. Based on macro and microscopic analysis of archaeological samples of high-quality basaltic stone, comparisons between the Malaeloa and Maloata areas provide details about variations in the manufacture of adzes and other flake tools and in debitage patterns.

**Ian G. Barber (University of Otago)**

***Wet or dry? An Evaluation of Extensive Archaeological Ditch Systems from Far Northern New Zealand***

Traditional New Zealand Maori horticulture is notable for the successful introduction of tropical shifting dry cultivation into a temperate zone. It is less well known that extensive archaeological garden systems have been identified from former wetlands about the Aupouri Peninsula of the subtropical far-northern North Island. These fields are evaluated from the evidence of aerial photography, soil unit distribution, and archaeological excavation. Extensive abandoned ditch systems at the base of the peninsula are identified and interpreted from early photographic records, especially in light of soil distribution information. The results of an investigation into a relatively intact remnant ditch system at Motutangi are summarized. Archaeological evidence suggests that the former Motutangi swamp system was an integrated irrigation and drainage network sustaining a cultivatable wetland environment focused on taro (*Colocasia esculenta*). The systems at Motutangi and at the base of the Aupouri Peninsula represent a substantial early regional commitment to wetland horticulture. This has implications for our understanding of early Maori economic development in northern New Zealand.

**Felicia R. Beardsley (University of California, Riverside), Nena Lono, and Standon Andrew (Office of Culture and Historic Preservation, Kosrae)**

***Coral Fishhooks of Safonfok, Kosrae***

Safonfok, Kosrae, is a site outside time; no oral history and no knowledge of the site exists other than its place name. Yet, this site has produced a coral fishhook industry that has been little documented in the Pacific. This is the first appearance of coral fishhooks and the industry that produced them in the island's archaeological record. Reported here are the preliminary results of our 1999 investigations, including the full range of coral fishhook manufacture, from the selection and preparation of raw materials to the debris from fashioning the hooks, to the final form. Safonfok is located on the southwestern coast of the island, an area referred to as the place of initial settlement and occupation. It is an unusually large compound that has been scavenged in recent times for building materials; yet the subsurface has proven to be rich in material remains.

**David Burley (Simon Fraser University)**

***Lapita Chronology and Settlement in the Tongan Archipelago of West Polynesia***

The Tongan archipelago represents one of the eastern-most frontiers for Lapita expansion in Oceania and, along with Samoa and nearby smaller islands, served as an ancestral homeland in the development of proto-Polynesian language and culture. Research in Tonga has recorded numerous sites incorporating an early Lapita colonizing component superseded and overlain by a distinctive Polynesian Plainware phase component. Excavations during the past five years at seven of these sites on six different islands in central and southern Tonga indicate an initial human settlement taking place by circa 2800-2850 BP with a transition into Plainware no more than two centuries later.

Comparison of faunal data between the Lapita and Plainware phase components illustrates an initial heavy reliance on natural resources leading to several species depletions or extinctions. The environmental consequences of this early settlement, the nature of the transition into an ancestral Polynesian society, and the archaeological implications for Lapita research in Remote Oceania are examined.

**Patrick M. Chapman (South Puget Sound Community College)**

***Bioanthropological Models of East Polynesian Settlement***

Bioanthropological studies of East Polynesians have generally focused on the ultimate origins of the Polynesian peoples and not on the settlement of the region. However, models of East Polynesian settlement have recently been published using anthropometric and genetic data. These models give conflicting views on East Polynesian settlement. Houghton's model supports what is generally referred to as the "authorized" model while Matisoo-Smith's model based on Pacific rat mitochondrial DNA supports a central East Polynesian interaction sphere. A third model based on cranial nonmetric attributes is also presented. The nonmetric model agrees in large part with Matisoo-Smith's model, providing support for a central East Polynesian interaction sphere, that includes the Southern Cook, Society and Tuamotu islands. The Marquesas Islands are not suggested as having a primary role in the settlement of East Polynesia.

**John Charlot (University of Hawai'i at Manoa)**

***Ni'au: Hawaiian Poet of the Early Monarchy Period***

Ni'au was perhaps the most famous poet of the early monarchy period. He followed in the line of the great poet and prophet Ke'aulumoku of the early contact period, who developed an extremely innovative style and addressed the problems of the arrival of foreigners. This short paper will provide biographical information on Ni'au, a description of his own novel style, and an analysis of his portrayal of the emotional problems faced by his contemporaries.

**A. Elena Charola (World Monuments Fund) and María Cristina Paterno (University of Pennsylvania)**

***The Angono Petroglyphs: Deterioration Mechanisms and Conservation Issues***

The Angono petroglyph site is located on a hill, close to the outskirts of the lakeshore town of Angono, Rizal, the Philippines. The petroglyphs are carved on the back wall of a shelter on stone surfaces that are harder than the underlying tuff. The postulated weathering mechanism that results in this surface induration has been attributed to the effect of water percolating through the tuff and partially dissolving its glassy matrix. The dissolved material is transported to the surface where it is deposited. The site does not appear to present too many problems but deterioration can be observed wherever water is present. Hence, measures to channel water flow away from the shelter are necessary and urgent. A careful condition study is required to monitor the subtle changes that occur at the site to prevent further deterioration of this important site.

**Min-yung Chiu (Academia Sinica; Taiwan)**

***Fish Remains From The Bellows Dune, Waimanalo, Oahu, Hawaiian Islands***

The Bellows Dune faces Waimanalo Bay on the windward coast of Oahu. Before 1989, this site was excavated by many archaeologists, but previous studies of fish remains from this site are limited and did not give significant results. In 1989 and 1990, a University of Hawaii Archaeological Field School excavation supervised by Prof. Barry Rolett recovered many fish bones using 1/8" mesh screen. This paper presents results from the analysis of these fish remains. This study shows that the prehistoric Hawaiian fishing strategy at Bellows emphasized inshore and herbivorous fishes. Netting was probably the dominant fishing method. Herbivorous fish increased in importance over time, especially *Scaridae* (*Scarus*), but carnivorous fish decreased over time. *Scaridae* probably played the most important role in the diet.

**Kaili Chun (Hawai'i)**

***Mimiki ke kai, ahuwale ka papa leho: "When the sea draws out in the tidal wave, the rocks where the cowries hide are exposed. Secrets will out on the day of wrath" ('Olelo No'ea). The "rights" of one are absolved by the values of another***

Old challenges in a new millennium face indigenous native Hawaiian people. The threat of extinction persists through carriers who are actively pursuing the destruction of indigenous Hawaiian people living in their own homeland. The role and responsibility of the Hawaiian as "artist" is not unlike that of our ancestors in ancient times; we are responding to historical events using available materials and technology. Our perspective is informed by the values instilled in our culture, language, traditions and faith. This paper will touch upon various issues that native Hawaiians have faced over time, through the language of art. Contemporary works by other Hawaiian artists and me will be presented and discussed in order to communicate our perspective of changing times and difficult challenges.

**Geoffrey R. Clark (Australian National University)**

***Lapita Settlement of Fiji: a Dendritic Structure?***

This paper examines and reviews evidence for Lapita settlement in the Fiji archipelago. Results from recent excavations at two sites - Votua on Mago Island and Ugaga Island - are contrasted with those from the Qaranipuqa-Wakea site excavated by Best (1984). Site differences appear to include the size of the occupation area, the degree of settlement permanency, the number and volume of non-local artifacts and the range of subsistence activities. The substantial site variation is suggested to reflect a dendritic settlement pattern characterized by 'gateway communities' through which people and commodities were funneled during the colonization era. Gateway communities are connected to sites of lesser complexity that in the context of Lapita could represent short-term camps for extracting resources or local centers



that functioned as dispersal areas for populations in regional hinterlands. The organization of Lapita settlement in a dendritic network provides an explanation for the striking variation between Fijian Lapita sites and suggests a simple organizational structure which could have enabled cultural homogeneity to be maintained over the vast area of the Lapita distribution.

**Charles M. Clow (Geo-Marine, Texas); Vincent H. Stefan (Lehman College, New York); George Gill (University of Wyoming); and Douglas W. Owsley (Smithsonian Institution)**

***Cranial and Facial Form Descriptions and Comparisons of Several Polynesian and Peruvian Samples***

Numerous researchers have been fascinated with Polynesia and how these islands came to be inhabited. Archaeology, osteology, folklore, ethnography, linguistics, and other avenues have been used as interpretive tools to recapture their history. However, much controversy surrounds the "peopling of the Pacific". Rapa Nui, the easternmost island in Polynesia, has for many years been at the forefront of this controversy. New osteological data has been generated by researchers, utilizing osteometric techniques and non-metric trait evaluations in hope of discovering the origin of the founding members of Rapa Nui through comparative analyses. From the wealth of data collected, previously unrecognized relationships are being established. In this study, samples from Rapa Nui, the Marquesas Islands, the Tuamotu Archipelago, the Mo'orea-Society Islands, the Huahine-Society Islands, the Gambier Islands, the Hawaiian Islands and Peru are described and compared and possible relationships are discussed.

**Ethan E. Cochrane (University of Hawai'i at Manoa)**

***Rethinking Marae Research***

In the Society Islands there are hundreds of monumental stone temples known as *marae* and archaeologists have spent almost 70 years explaining the variation among these structures. Nevertheless, distinguishing temporal and spatial variation among *marae* has been a consistent problem for most archaeologists. Several archaeologists have developed general *marae* chronologies, but it is difficult to apply these chronologies to specific sets of *marae*. In this paper I demonstrate a method for creating chronologies of monumental architecture. First, using published data, *marae* descriptions must be translated into a new classification constructed for use with seriation as a dating method. Chronological seriation of *marae* groups in different valleys are then built and chronologies in the 'Opunohu and Punaruu valleys are compared to archaeological and ethnohistorical evidence of change over time. By generating chronologies from published data archaeologists may be able to accurately separate temporal and spatial variation among *marae*, as well as structure future field work and test hypotheses about cultural change.

**Ross Cordy (Historic Preservation Division, State of Hawai'i)**

***Hawaiian Archaeology: What Are We Learning About the Past and How Can We Improve Our Research?***

One of the benefits of heading the Archaeology Branch in the Historic Preservation Office is that one sees nearly all the archaeological research going on in the Hawaiian Islands. After some 15 years from this perspective, this paper looks at the current state of research on a number of topics in the Islands: origins, the spread of settlements, agricultural systems, household organization, community organization, social ranking and the development of complex societies, changes in religion, quarries and exchange, and demography. New findings and new emphases are developing, sometimes at a painfully slow pace. Stunning shortcomings exist, both in the way work is conducted and in approaches to improve future research. The paper offers some suggestions for the future.

**Linda Scott Cummings (Paleo Research, Colorado)**

***Vegetation Change in Hawai'i: Cultural and Climatic Influences***

A look at pollen records from a variety of sites in Hawai'i provides information concerning past vegetation distribution. Significant changes in vegetation are noted around AD 500 such as the retreat of *loulou* palm from lowland coastal areas. How much of this vegetation change might be associated with human activity? Is there good evidence for paleoenvironmental fluctuation as the causal factor?

**Anne D'Alleva (University of Connecticut)**

***Poetua's Pregnancy and Beaglehole's Ellipsis: The Creation and Reception of a Portrait from Cook's Third Voyage***

One of the most famous Cook-voyage images is a portrait by expedition artist John Webber depicting Poetua, a high-ranking young woman from the island of Ra'iatea. Recently, scholars have noted that Webber probably painted this portrait while Cook was holding Poetua and her husband hostage on board his ship, a situation that has complicated the interpretation of this image. What has not been acknowledged is that Poetua was pregnant at the time the portrait was painted. Although many scholars – including J.C. Beaglehole, the preeminent authority on Cook's voyages in this century – have worked with Edgar's journal and have quoted from the very passage that describes Poetua's condition, none has discussed this issue in his work. I conclude that Poetua's pregnancy has been deliberately omitted not only from official voyage accounts but also from scholarly discourse. I interpret these omissions as deriving in part from a desire to sanitize Cook and maintain his reputation. At the same time, I believe these omissions also derive from a reluctance to address Poetua's maternal body, a body that is "other" in three senses: female, Islander, and pregnant. Such an acknowledgment would work to undermine the primitivist image of Poetua as South Seas Beauty, an image that still exercises great appeal.

**Riet Delsing (University of California, Santa Cruz)**

***Polynesian Cultural Revival. The Visit of Hōkūle'a to Rapa Nui***

After almost twenty five years of navigation throughout the Pacific, the Hawaiian voyaging canoe *Hōkūle'a* has become a symbol of



cultural renaissance for Polynesians in general and Hawaiians in particular. In June 1999 *Hōkūle'a* set course for Rapa Nui, via the Marquesas and Mangareva in an historic attempt to "close the triangle". This paper narrates the events around *Hōkūle'a* arrival on Rapa Nui and the ceremonies and cultural exchanges which took place during her stay on the island. It also tells about the links that were established between the Hawaiian delegation and members of the Rapanui community. These contacts were geared towards issues of education and ecology and an exchange of Hawaiian and Rapanui performing traditions. *Hōkūle'a* visit served as a reminder and a warning; a reminder of an ancient navigational knowledge system and common genealogies, and a warning against the depletion of natural resources and the loss of territories and languages. In this context, Rapa Nui emerges as a contested space and place, in its daily and frantic struggle to try and combine tradition and modernity.

**Francesco di Castri (CNRS, France)**

***Tourism in French Polynesia and Easter Island***

International tourism has become the main force driving environmental, cultural, social and economic change in Polynesia. For the Pacific area, expectations are that the annual average growth rate of tourism through the year 2010 will be 7%, almost doubling the world average. Depending upon the policy and the management adopted, the impact of tourism can be positive (cultural revival and enhancement, less demand on fragile agricultural and forestry resources, increase of economic wealth), or negative (cultural uniformity with distortion of value systems, degradation of coastal ecosystems, increasing economic and social gaps). A comparative analysis of tourism in islands from French Polynesia to Easter Island reveals a great variety of situations regarding the time of initiation and the rate of spread of tourism, as well as different patterns and trends of this development and its impact. Sustainability of tourism in these islands depends on economic diversification, maintenance of a cultural Polynesian identity, preservation of coastal and coral reefs ecosystems, prevention of massive urbanization, and development of appropriate services and infrastructures through training and capacity building of local populations. Development of the Internet greatly enhances the possibility of tourism decentralization, diffusion, and local control, as well as of cross-cultural exchanges among islanders.

**Elaine and Don Dvorak (Santa Clara, California)**

***The Uses of Kite Aerial Photography in Archaeology***

Based on our Kite Aerial Photography from two field seasons on Easter Island, we will demonstrate that, even with simple and unsophisticated equipment, low level aerial photography can be very useful for archaeologists. For a preliminary aerial survey, KAP photographs and slides from a "high" altitude (approx. 100 meters) provide a good overview of an area, and show features that neither are obvious nor easily comprehended from ground level. KAP also is useful for studies of erosion and to highlight conservation problems. Pictures taken over a period of time can document the coastline as well as site erosion. Low level pictures (+/-20 meters) document details of a site. Even for those who are familiar with maps and sketches of an area, views from above provide a comprehensive panorama. We propose to show examples taken in 1996 and 1998 elucidating some of the uses that can be made of Kite Aerial Photography.

**Julie S. Field (University of Hawai'i)**

***GIS-based Analyses of Agricultural Production and Habitation in the Sigatoka Valley, Fiji***

The study of agricultural production in Pacific Island contexts has indicated that the spatial variability of resources has played a causal role in the formation of competitive strategies. The research presented in this analysis suggests that temporal variability, in the form of seasonal variation in production, can also initiate competition, and produce microenvironments that are more or less productively stable over time. The analysis of aerial photography, hydrological modeling, and a geographical information system (GIS) are used to measure the varying levels of productivity in the Sigatoka Valley, on the island of Viti Levu, Fiji. The results compliment the work of previous researchers to a high degree, and also more directly measure the environmental variables that fostered settlement and competition across spatial and temporal dimensions.

**Ben Finney (University of Hawai'i at Manoa)**

***Closing and Opening the Polynesian Triangle***

On 8 October 1999 the neo-traditional voyaging canoe *Hōkūle'a* made landfall on Rapa Nui, 17 days out of Mangareva. The primary goal of the voyage was broadcast as "closing the triangle," in the sense that after having sailed throughout Polynesia the canoe had not yet reached the triangle's south-easternmost outpost. However, because the planners were not confident that seasonal wind shifts would enable *Hōkūle'a* to be sailed directly from Mangareva to Rapa Nui during the short time available, they replaced the canoe's Polynesian-style sails with high-performance yacht sails. Ironically, it turned out that the new sails were not really crucial to reaching Rapa Nui. Instead of having to tack against the trades, northerly winds caused by a series of weather fronts passing to the south and by cyclogenesis to the west enabled the canoe to be sailed most of the way by reaching across the wind, the most favorable sailing angle for a traditionally-rigged Polynesian canoe. What is more, for the Rapa Nui, the arrival of *Hōkūle'a* symbolized the opening of the triangle, not its closing, for it brought home to them their ancestral connections with the sea of islands beyond their shores.

**Joseph C. Finney (Monterey, California)**

***The Broad Context of the Rapanui Language***

Interviews of one of the last ten speakers left in a nearly extinct language in Formosa showed that the names of numbers are easily recognizable and nearly the same as in Rapa Nui and Tahiti. Syntax (grammar) is the main focus of linguistic research today. Universal

principles are being established for diachronic syntax that, like archaeology, reconstructs the past. Rapa Nui's path from ergative syntax back to the usual accusative syntax has followed the same path used thousands of years ago by an ancient ancestor of Rapa Nui in Indonesia. In contrast, Tahiti and the rest of Eastern Polynesia took a different path. Rapa Nui's current drift toward extinction of the language is compared with the brighter picture in Niue, a Polynesian island near the International Date Line.

**Steven Roger Fischer (Institute of Polynesian Languages and Literatures, New Zealand)**

***Mangarevan Doublets: Possible Implications for Eastern Polynesian Prehistory***

Doublets are languages' temporal doppelgangers. They occur when a language re-borrows a foreign word, as with modern English 'chef', related to medieval English 'chief', or when it borrows a foreign word that contrasts with a native cognate, as with modern '(ham) burger', anciently related to medieval 'burgh'. Doublets can provide significant information about a language's origin, changes, and influences. The Mangarevan language of the Gambier Islands, situated between Tahiti and Easter Island, displays one of the largest collections of doublets in the 40-odd Polynesian languages. At the present stage of investigation, the Mangarevan doublets appear to signal a surprisingly early settlement of the island, possibly from the Marquesas, with a second intrusion, perhaps from the Society Islands, many centuries later. The nineteenth and twentieth centuries then introduced a large amount of specifically Tahitian borrowings, sometimes creating 'triplets'.

**Scott M. Fitzpatrick (University of Oregon) and Julie M. E. Taomia (Historic Preservation Office, American Samoa)**

***Using GPS in American Samoa: Implications for Conservation Work in the Pacific***

One of the most important technical advances for surveying and recording spatial data in recent years has been the Global Positioning System (GPS). Coupled with a Geographic Information System (GIS), these technologies provide archaeologists with tools that have unparalleled advantages over manual methods for surveying, mapping, recording, and manipulating information gathered in the field. The widespread availability, ease of use, and reduction in cost has also made these technologies more appealing to archaeologists. Advances in these technologies are often governed by those who use them most, resulting in the archaeologist having to overcome numerous obstacles for satisfactorily collecting and using field data for cultural resource management. Our experience using GPS and GIS in American Samoa illustrates the pragmatic pitfalls that can arise when using these survey tools. While GPS and GIS are extremely accurate and useful under certain conditions, we emphasize the need for extensive pre-planning when collecting data and good knowledge of the advantages and limitations when using different GPS and GIS software and hardware configurations.

**John Flenley and Kevin Butler (Massey University)**

***Further Pollen Evidence from Easter Island***

The complete pollen diagram from KAO 2, the bore hole near the center of Rano Kau, is presented for the first time. The diagram gives a regional vegetational history for the island, in contrast with KAO 1, which gave a local picture. The overall conclusion is similar, however, but extends back much further in time. There is evidence for both climatic and anthropogenic changes. Other recently published interpretations of the ecological history of the island will be reviewed briefly.

**George Gill (University of Wyoming)**

***Basic Skeletal Morphology of Easter Island and East Polynesia: With Paleoindian Parallels and Contrasts***

A clear picture of the basic skeletal biology of the prehistoric Rapanui is rapidly emerging now, twenty years after the successful efforts in excavation and curation of human remains (n = 426) by the 1981 Easter Island Anthropological Expedition. Osteometric studies, discrete trait analyses and paleopathology studies have been completed which present a better picture of origins, relationships and lifeways of the prehistoric Rapanui. Their high, long, large crania and facial characteristics are distinctive, and these traits tie them directly to other East Polynesians (especially from the Gambier Islands). Their platymetric femora and other distinctive postcranial traits are likewise well studied. In a number of characteristics of the face and skull the ancient Rapanui (and other East Polynesians) resemble closely the recently studied Paleoindians such as Kennewick Man and Spirit Cave Man. In some traits they do not. These points of comparison and contrast are helping to form a picture of the evolution and dispersion of East Asiatic pre-Mongoloid people from centers in East Asia to widely dispersed areas in Polynesia and the Americas.

**Gordon G. Goleš (University of Oregon)**

***A New Provenance Tool: Cathodoluminescence of Quartz Grains***

Many types of minerals exhibit cathodoluminescence (CL), emission of visible light upon excitation by an electron beam. Among these, quartz is notable because of its widespread occurrence and the remarkable detail seen in high-resolution CL images. My colleagues and I have made extensive studies of CL of quartz, using a CL mirror attachment to a scanning electron microscope (SEM). In the resulting images, features as small as 3 to 4 microns can be seen. The DoGS SEM-CL facility also has the capability of recording R-G-B color images of CL traits. Distinctive features of use in provenance studies include elaborate zoning, resorption and re-growth features, CL-dark healed fractures of diverse widths, blotches and 'spiders' (ameboid CL-dark features at fracture intersections), and diverse CL colors. These features are not visible in back-scattered-electron images or in petrographic examination. A selection of characteristic CL images shall be shown, to illustrate the well-tested capability of distinguishing quartz from among a variety of volcanic, plutonic, and metamorphic source rocks. The technique is rapid and inexpensive. It requires polished sections made with a special non-luminescing epoxy, but these are not harmed by the SEM beam and subsequently can be used in a number of other kinds of studies.

**Juan Grau (The Instituto de Ecología de Chile)**

***More about *Jubaea chilensis* in Easter Island***

The hypothesis that *Jubaea chilensis* occurred on Easter Island for up to two millennia before the arrival of European navigators has already been set forth by the author in previous papers that suggest the possibility of the chorological migration of *Jubaea* palm fruits from the coast of South America (Chile) to Easter Island by flotation along the Humboldt and Equatorial currents. To the historical, paleopalynological, archaeological, linguistic and morphological evidence, the author adds some ecological facts, such as the coincidence of the climatic and edaphic demands of this palm with those existing at the present time in Rapa Nui. The recent findings of cylindrical molds in lava, from later volcanic eruptions and the suggestive bark prints of *Jubaea* palm tree trunks, are also discussed.

**Alejandra Grifferos (University of Valparaíso, Chile)**

***Between Sticks, Stones and Stone Walls: Ethnicity on Rapa Nui***

Recent anthropological studies of Rapanui culture have not considered in depth the subject of inter-ethnic relations. During this century, a series of events occurred that form part of the social framework that shapes the so-called "Rapanui ethnicity". Such is the case of an event that occurred on the Island in December 1967 which had the character of "conflict" due to the level of interest that it generated in the mainland press, and also in the community itself. The traditional arrival of the Island Governor, usually characterized by receiving a flower lei, with authentic music in the background and great camaraderie, was replaced by insults to the Governor and the throwing of stones. The police intervened, and some island women were beaten with police batons. An analysis of this conflict will be approached from the point of view of the strategies, tactics, interests and positions of those involved in a manner that will permit us to detect the elements that have legitimized Rapanui ethnicity. The methodology consists of an analysis of the judicial expedients carried out in a manner that contrasts with the collected testimonies of the islanders, with the expectation of anticipating future conflicts on the Island.

**Simon Haberle (Monash University, Australia)**

***Human Colonization and Environmental Change on the Juan Fernández Archipelago, Remote Eastern Pacific Islands***

The Juan Fernández Archipelago lies at the very edge of the known expansion of prehistoric Polynesian peoples across the Pacific and is possibly one of the few locations that remained unaffected by humans prior to European occupation some 400 years ago. Despite the importance of the Juan Fernández flora to studies in global biodiversity and conservation there is little known about past natural and human influences on the archipelago environments. A survey of sediment deposits above 750 m, where cloud cover is most persistent, revealed shallow organic-rich deposits that preserve pollen, charcoal from burnt plants, and other plant fossils. The arrival of Europeans led to the destruction of local tree-line vegetation, followed by the expansion of open vegetation and the arrival of introduced weeds. Fires may have been very rare prior to human occupation and conditions suitable for ignition may have only been possible during severe dry periods connected to the Pacific climate phenomenon known as El Niño-Southern Oscillation (ENSO) events or to longer term climate variability such as the Little Ice Age. This data will contribute to our understanding of colonization of the Pacific and the role of short-term climate variability versus human activity in shaping our environment.

**Clemente Heri-Veri Te'ao (Rapa Nui)**

***Archaeological Report of Recent Excavations at Hanga a Piko***

At Hanga Piko Bay, Easter Island, excavations and restoration of Ahu Tatakū Vave have been on-going since 1995. This site, an *ahu* with one statue, had been seriously impacted by humans, construction projects, animals and natural forces. Following excavation, the statue recently was re-erected on a rebuilt *ahu*, although none of the original stones from the *ahu* sea wall remained. The paper is a report on the archaeological work and the results obtained from systematic excavations.

**Richard Holdaway (Palaecol Research, New Zealand)**

***Role of the Original Vegetation in Early Polynesian Settlement of New Zealand***

The original vegetation of New Zealand is usually considered to be of interest to archaeology mostly because its widespread removal by burning provides an indicator of human presence. However, the patterns of vegetation distribution and productivity would have controlled the distribution and abundance of large birds that were a significant dietary component of some groups of Polynesian colonists. This paper presents information that suggests knowledge of the relationships between large birds and the original vegetation will be useful to studies of the pattern and progress of Polynesian colonization.

**Rob Hommon (National Park Service, Hawai'i)**

***The Emergence of Large-Scale Society in Hawai'i***

Hawai'i is uniquely suited to illuminate the emergence of large-scale (commonly termed "complex") society, one of the most significant processes in our species' history. By the late 18<sup>th</sup> century the largest of Hawai'i's competing polities encompassed at least 10,000 square kilometers and included more than 600 local communities with a total population estimated at 120,000, considerably beyond the limits of middle-range societies. Hawai'i also displayed features common to large-scale societies such as socioeconomic classes and as many as six governmental strata. Nevertheless, missing or undeveloped in the Hawaiian polities were elements usually associated with large-scale societies, including long-distance trade, markets, permanent capitals, towns, palaces, large-scale food storage facilities, full-time specialists, standing armies, highways, draft animals, a monetary system, a writing system, metallurgy, and pottery. This paper applies Cultural Complex Adaptive Systems Theory to the rise of large-scale society in Hawai'i using data from archaeology and associated disciplines.



**Norman Hurst (Cambridge, Massachusetts)**

***From the Cellar to Spotlight: Rejuvenation of an Historic Pacific Islands Collection***

The Pacific Islands collection of the Natural History Museum and Planetarium of the City of Providence, constitutes the fourth largest and most significant Oceanic collection in New England. The Museum, founded in 1894-5, contains over 400 Polynesian and Micronesian objects. The objects came from Pacific voyagers, including sea captains, merchants, and whalers beginning in 1823. The author completed cataloging the collection and created a relational database for the use of the staff and visiting scholars in 1999. Installation of the newly cleaned, restored, and conserved collection is scheduled for spring 2000 in a newly renovated gallery space. This paper will present a number of hitherto unpublished and unexhibited objects, many with interesting collection histories. Perhaps most interesting are three early carvings from Rapa Nui, including a *moko* figure of unusually small size, a pendant figure of a dwarf of exceptional aesthetic quality, both of which are of early contact, probably 18<sup>th</sup> century, period, and a fine 19<sup>th</sup> century *moai kavakava* figure.

**Carol S. Ivory (Washington State University)**

***Contemporary Sculpture in Te Henua Enana, the Marquesas Islands***

By the late 1970s, a new era of carving had begun in the Marquesas Islands. It resulted from a confluence of religious, political, and economic events at that time. By the late 1980s, a generation of talented master carvers had emerged. They created an innovative style of narrative sculpture that now decorates numerous *tohua* (public festival grounds), churches, and public sites throughout the Marquesas. Today, carvers on several islands, but mainly Nukuhiva and Uahuka, make a wide range of objects, from unique, high quality pieces for a discerning, upscale collector market, to relatively modest, somewhat repetitive ones for a wider tourist market. At the same time, a renewed interest in historical art styles has led to the emergence of several carvers, such as Joseph Va'atete and Anihoka Tepea, who have become expert replicators of nineteenth century objects. This paper will trace the history of contemporary sculpture in Te Henua Enana, assessing the roles of key artists and patrons. Also, it will examine style characteristics, common subjects, and the most recent trends and innovations.

**Carol S. Ivory (Washington State University)**

***Revisiting Late Nineteenth Century Sculpture in Te Henua Enana, the Marquesas Islands***

One of the least understood, and perhaps most under-appreciated, artistic periods in the Marquesas Islands is the late nineteenth century. Ethnographers and others who visited Te Henua Enana one hundred years ago saw a people they described as dying out, a culture that had collapsed under French colonization and Catholic missionization, and a carving style most often described as "degenerate". But the arts did not die out; they became an essential element in the survival of the indigenous culture. Changing economic and social conditions fostered the beginning of a distinctive new carving style, one in which new types of objects were made to meet new needs, and destined for a new market. This style became, in time, the standard and accepted model for Marquesan carvers. It has persisted for most of this century. Only in the last twenty years has a contemporary style emerged that brings together numerous new influences, while remaining firmly rooted in the late nineteenth century. This paper will examine late nineteenth century Marquesan sculpture, placing it within the political, economic and social context of the time and re-evaluating its critical and generally unrecognized role in the survival of Marquesan culture during a very difficult period in its history.

**Chris Jacomb (Canterbury Museum, New Zealand)**

***The Archaeology of Moncks Cave, Canterbury, New Zealand***

Moncks Cave is a key site in understanding the transition from Archaic to Classic Maori, because of the range of both perishable and non-perishable artifacts found there in 1889, at which time it was thought to have been completely excavated. The interpretation of the material culture of the site has been difficult because of the absence of chronological control. Recent investigations at Moncks Cave revealed several intact cultural deposits, including both faunal and artifactual remains. Eleven radiocarbon determinations on marine shell recovered suggest that the cave was occupied some time between the mid-fourteenth and mid-fifteenth centuries AD. The results have important implications for research into the nature and course of the changes that took place during the little-understood transitional phase in Maori culture.

**Dilys Johns (University of Auckland)**

***Conservation of Taonga from Wetland Archaeological Sites in Aotearoa/New Zealand***

The organic remains which have been deposited in wetlands since Maori occupation began in New Zealand provide a particularly valuable component of the pre-European archaeological record, as pottery and metals were completely absent. To date, no major survey of wetlands has been completed in New Zealand, despite the frequent recovery of waterlogged artifacts during drainage operations. This paper briefly outlines the different types of wetsites in New Zealand, current wetland archaeological projects, the conservation of wetsites, and artifact conservation at the University of Auckland.

**Adrienne Kaeppler (Smithsonian Institution)**

***A Picture is Worth a Thousand Words***

This paper examines the enigmas that arise from two photographs that include Rapa Nui artifacts. A picture may be worth a thousand words, but sometimes it takes two thousand words to explain them.

**Eric Kjellgren (The Metropolitan Museum of Art, New York)**

***Art on the Edge: The Moriori Traditions of Rekohu (the Chatham Islands)***

Lying at the outermost edge of Polynesia, the remote, sub-Antarctic islands of Rekohu (the Chatham Islands) were the last in the Pacific to be settled by Polynesian peoples. Situated in an isolated environment, similar in some respects to Easter Island, the Moriori people of Rekohu developed a distinctive series of artistic traditions, which remain poorly known, even amongst Polynesian scholars. The first survey of Moriori art in over half a century, this paper examines Moriori art in the context of Moriori culture and oral traditions. Moriori artistic traditions include emaciated figures, which some liken to the *moai kava kava* of Easter Island, unique dendroglyphs carved into the trunks of trees, as well as architectural carvings, personal ornaments, weapons, and distinctive box-like canoes buoyed by seaweed. In addition to describing the principal forms of Moriori art, this paper critically reevaluates much of the early scholarship on the Moriori which, following outmoded theories of "racial" and cultural history, sought to construct the Moriori as a "degenerate" form of Maori culture. Rejecting this notion, this paper argues that the Moriori, though they clearly show Maori influences, are a distinct people whose art and culture are worthy of recognition in their own right.

**Robert J. Koestler (The Metropolitan Museum of Art, New York)**

***Anoxic Method for Controlling Biodeterioration in Cultural Objects***

Insect infestations within cultural objects crosses all cultural, geographic, and political boundaries. The method(s) of dealing with these infestations has changed over the past 10 years. Older techniques to control them have included such things as herbal treatments, fire smoke, and, most recently, chemicals. All have provided some degree of effectiveness if not actual control of the pests. But, often the treatment has created damage of its own. In an effort to eliminate side effects of controlling insect or microbial attack on art objects, parallel research efforts in a number of laboratories worldwide, including ours, have focused on non-chemical means using oxygen-free environments. This approach, usually effected with argon as the replacement gas for oxygen-rich air, has proven very successful for insect control and currently is the only method we use at the MMA to treat infested art objects. This approach does seem to work for fungal control. The argon suffocation method has been coupled with a sensitive insect (and microbial) respiration detection technique developed at the MMA to detect insects before treatment and to prove the effectiveness post-treatment. This paper outlines the techniques and procedures routinely employed at the MMA to control insect infestations.

**Thegn Ladefoged, Mark McCoy (University of Auckland), and Michael Graves (University of Hawai'i)**

***Multiple Trajectories of Agricultural Development and Land Tenure in Kohala, Hawai'i***

From the twelfth century to the nineteenth century the Kohala landscape of Hawai'i Island was transformed from a relatively pristine environment into an intensified dryland agricultural field system. This process of agricultural development included the construction of earth and rock walls and trails that increased the productivity of farming in the area and included radical changes in land tenure. Our analysis of detailed GPS survey data from the communities of Kahua and Kehena, in conjunction with previous survey data from Lapakahi, models these chronological changes. By making a few explicit assumptions it is possible to document two alternative trajectories of agricultural development. In Lapakahi and Kehena, agricultural development included an initial rapid expansion followed by the intensification of the *ahupua'a*. In Kahua, the processes of expansion and intensification were more closely synchronized. These alternative strategies of agricultural development were associated with shifts in the socio-political system and land management.

**Roger Langohr, Jari Mikkelsen and Geertrui Louwagie (University of Gent)**

***Preliminary Results of Soilscape Studies on Easter Island***

Soil study campaigns in 1990 and 1997 have allowed us to understand the variability in soil types on Easter Island. This paper is based on three case studies: the foot of the slope at Poike; at Akahanga; and at La Pérouse areas, where we have used units of observation at different scales to arrive at a better understanding of the soilscape and its dynamics. The importance of the soil variability is further commented on within the frame of archaeopedological research. It is concluded that soil erosion by surface runoff, a process dramatically active in some parts of the island today, has also been very active in the past. However, this was before human colonization and under weather conditions markedly different from the present day climate. Soil erosion during the period of intensive land occupation in this millennium seems more to be related with intentional land management operations rather than with surface runoff and/or mass wasting processes. The importance of the small scale soil variability is further discussed along a series of pedo-topotranssects studied in the Akahanga and La Pérouse areas.

**Susan A. Lebo (Bishop Museum, Honolulu) and James Bayman (University of Hawai'i at Manoa)**

***New Perspectives on Kaniakapupu, Nu'uuanu Valley, O'ahu***

Kaniakapupu, a royal summer residence of Kauikeaouli (King Kamehameha III) offers important perspectives on Hawaiian history. Interest in this important site by Native Hawaiian, historical, archaeological, and preservation communities continues to generate important dialogue concerning its cultural significance and interpretation and stabilization. We report on work by the University of Hawai'i at Manoa Archaeological Field School towards this effort.

**Charles M. Love (Western Wyoming College)**

***The Moai Roads of Easter Island***

An examination of the approximate 20 kilometers of moai roads leading from the quarry at Rano Raraku to various areas along the north and southeast coasts of Easter Island reveals, in numerous areas, basic cut-and-fill construction. In at least one area a pavement was made, apparently to facilitate the movement of O Paro (Ahu Te Pito Kura) though a section of rough bedrock. Excavations of the roadway,

as well as clearing 10 and 20 meter stretches of the surface of the roadway to show how the roadway was cleared, cut, graded, and in many places filled with soil. Surveys of the roadway show that various grades up and down slopes were cut and filled to make the negotiation of those slopes easier for the statue movers. While most of the roads trend straight to the next destination, two sections have their grades curved or side-hilled up the slopes that are too steep to negotiate directly. The radius of the side hill curves bear directly on the method of moving the statues and the number of people required to haul on ropes. Clearly, an enormous amount of cooperative labor was expended on these roads. It is possible also that the roads were used for certain ahu construction elements. An example is seen in the 3 meter long basaltic porphyry slabs forming the *ahu paenga* of Ahu Hanga Poukura. Their source is 8 kilometers away near Rano Aroi. The area around several of fallen statues was cleared to examine the surface upon which they were originally standing.

**Grant McCall (Australian National University, Canberra)**

***The Only Man who Understood Rapanui: How Pito-Pito Became a "Black History"***

Jean Baptiste Onesime Dutrou-Bornier (1834-1876) was a sea captain, adventurer, businessman and developer. In the history of Rapa Nui, where he spent his final years, he usually is seen as a greedy colonialist who was responsible for murder and destruction. I use the figure of Dutrou-Bornier, called "Pito-Pito" locally owing to the shiny buttons on the jacket he often wore, to explore the re-founding of Rapa Nui in the 1860s and 1870s. During this time, the social structure of the island was re-organized along modern lines and Rapa Nui's economic and cultural destiny set for many years to come. I argue that Pito-Pito was the only "*tangata-hiva*" (outsider) to understand the island's commercial development; he certainly was the only *tangata-hiva* to make a good living from the place. He did this by correctly understanding that Rapa Nui is a sub-tropical and not a tropical island, a simple fact of which all Rapa Nui are very aware but which, even today, Chilean government policy has not fully appreciated.

**Helene Martinsson-Wallin (The Kon-Tiki Museum, Norway)**

***Construction, Destruction and Re-construction of Monumental Architecture on Rapa Nui***

This paper deals with the construction, the destruction and the re-construction of the monumental architecture of Rapa Nui's ceremonial sites. Over the years there has been a number of suggestions to why an outstanding monumental architecture emerged on Rapa Nui. The two main explanations are: 1) that it emerged from ideas brought by the initial settlers and evolved due to isolation, or 2) it emerged due to cultural contacts. These two explanations are evaluated by studying the archaeological record, and evidence from ethnohistory and traditional history. Furthermore, the questions of why the monumental architecture on Rapa Nui was destroyed are discussed. Explanations related to climatic and ecological change, catastrophe theories and ideology are explored. Finally, a discussion concerning the ideology and praxis related to the re-construction of the monuments is presented.

**Patricia Martz (California State University, Los Angeles) and E. Jane Rosenthal (Statistical Research, Inc., California)**

***The Maritime Hunter-Gatherers of San Nicolas Island, California: An Analog to Rapa Nui?***

San Nicolas Island is the smallest, most remote, and inhospitable of the settled California Channel Islands. It is exposed to severe northwest winds, the climate is semi-arid, and there are no trees, important edible plants, terrestrial game animals, or high quality stone tool materials. Given these conditions, it has been suggested that the island was inhabited relatively recently and perhaps, intermittently. Since 1992, we have conducted a sampling program designed to recover data regarding the nature and extent of prehistoric occupation. Our unexpected results indicate that the island was continuously occupied for 7,000 years. Although the initial colonists were probably generalized hunter-gatherers, at the time of European contact the prehistoric population was almost entirely dependent on marine resources. This maritime hunting and gathering society developed a sophisticated fishery and participated in an extensive trade network. Despite the environmental challenges, the archaeological record suggests that the islanders were relatively self-sufficient and that trade was important more for social maintenance than basic subsistence.

**Elizabeth Matisoo-Smith (University of Auckland)**

***The Powers and Pitfalls of Molecular Archaeology in the Pacific***

In 1989, it was announced in *Nature* that DNA could successfully be extracted from archaeological bone, and thus was born the field of molecular archaeology. The last decade has seen the field flourish, and frequently, issues of Pacific settlement and prehistory have been the focus of study. While the results of many molecular studies have contributed positively to our knowledge of Pacific prehistory, others have not. It must be recognised that molecular techniques are just tools, and like all tools, they are only useful if used properly. What is most important is that the right questions are asked, the appropriate samples to answer those questions collected, and the results interpreted in the context of current knowledge. This paper discusses the past, present and future of molecular archaeology, focusing on both the strengths and weaknesses of the application of molecular techniques and the interpretation of molecular data with regards to the prehistory of the Pacific.

**Sidsel Millerstrom (University of California, Berkeley)**

***Archaeological Art, Architecture, and Settlement Pattern Archaeology; a Holistic Approach to Contextualize Rock Images in the Marquesas Islands, French Polynesia***

To contextualize rock art in Hatiheu Valley, Nuku Hiva Island, a settlement pattern approach was used. Several thousand individual images, many directly associated with structures and features, were mapped and documented. In addition, test excavations revealed a num-



ber of sites containing both architecture and images. The rock art distribution, most of which appear to be from the late prehistoric- early historic period, indicates the presence of a highly developed elite class with a socio-political ideology that reached beyond Hāhihe Valley. While some images may have served as emblematic tribal affiliation and prestige, others reflected increased personal social status.

**Peter R. Mills (University of Hawai'i at Hilo)**

***Small Fish in Big Ponds: Establishing a Mission for UH Hilo in Hawaiian Archaeology***

Recent discussions of the structure of Hawaiian archaeology in *Honolulu Magazine*, and in the Society for Hawaiian Archaeology's meetings and journals, have focused on several institutions, most notably the Bishop Museum, University of Hawaii at Manoa, the State Historic Preservation Division, and the collective of private archaeological consultants in the state. University of Hawaii at Hilo, with one tenure-track archaeology position, and an average enrollment of 55 undergraduate anthropology majors, has been mentioned only in passing in these discussions. Nevertheless, UH Hilo is in an excellent position to facilitate some of the desired transitions voiced by advocates for institutional change in the practice of Hawaiian archaeology. This paper reviews some of the current and planned archaeological research being conducted through UH Hilo, and how these efforts hope to increase Native Hawaiian participation in archaeology, promote broad-scale integration of research between various institutions, and increase public access/involvement in archaeological research.

**Catherine Orliac (Museum National d'Histoire Naturelle, France)**

***Archaeobotanical Research on Easter Island***

Archaeobotanical research carried out on Easter Island at three coastal dwelling sites, yielded an abundance of archaeological material containing several thousand plant charcoal fragments. The botanical identification of wood charcoal, discovered at stratigraphic levels dating from the beginning of the 14th to the mid-17th century AD, revealed the presence of new taxa unknown on the island previously; these taxa belong to a form of mesic vegetation.

**Colin Pearson (University of Canberra); Ivan Cole (CSIRO, Australia); Vinod Daniel (Australian Museum) and Steve King (University of New South Wales)**

***Passive Climate Control for the Storage and Display of Collections in Pacific Island Museums***

Collections housed in museums, galleries, keeping places and historic houses in the Pacific Islands need to be preserved for future generations. Many of these collections, once they enter a museum, no longer have the traditional care of owners and custodians, and have to rely on the museum staff and the climate in the museum to provide long term protection for the collections. Mechanical air conditioning, which is normally recommended for such institutions, is expensive to install, run and maintain, and there are many examples of collections being damaged when the air conditioning or services have failed. The challenge is how to provide a stable climate for the preservation of collections without the use of air conditioning. This paper will address the alternatives, promoting the use of passive climate control for the storage and display of collections, including the building site and location, internal and external climates, the role of the building, and the control of temperature, relative humidity, air pollutants, light levels and pests.

**Lahela Perry (University of Hawai'i at Manoa)**

***Samoa's Star Mounds: A Reexamination***

The Samoan Islands of both Samoa and American Samoa have been studied by a wide variety of archaeological researchers with different objectives. Their efforts have answered many questions about Samoan prehistory. However, many archaeological aspects, such as Samoan star mounds, remain poorly understood. Previous archaeological research and interpretation of star mounds overlooks their stylistic characteristics. This paper offers an approach to critical stylistic reexamination of star mounds in order to establish an empirical database for their future analysis in prehistoric Samoa.

**Michael Pietrusewsky and Rona Ikehara-Quebral (University of Hawai'i at Manoa)**

***Multivariate Comparisons of Rapa Nui (Easter Island), Polynesian, and Circum-Polynesian Crania***

Separate applications of multivariate statistical procedures (Mahalanobis' generalized distance, stepwise discriminate analysis, and various clustering methods) are applied to male and female measurements recorded in crania collected over a century ago on Rapa Nui for comparisons with more recent data recorded in Polynesian and circum-Polynesian crania. The results of using male and female craniometric data are used to test hypotheses based on archaeological, biological, and other kinds of data which address the origins of Easter Islanders and their relationship to surrounding Pacific and circum-Pacific groups.

**J. Douglas Porteous (University of Victoria, B.C.)**

***Envisioning Easter Island***

Like many well-known Polynesian islands, Easter Island has been the subject of a series of problematic cultural representations. Academic visions of Easter Island are chiefly "prehistorical" or "cultural", with minimal attention given to the modern Rapanui people as social, political or economic agents. Building on popularized academic work, the international public visions of the island centre on its "remoteness" and "mystery" (origins of the Rapanui, *moai* technology, etc.). Hyperbole ("*las isla mas isla del mundo*") and synecdoche (Easter Island = "stone heads") are rampant. But perhaps the most effective misrepresentation of Easter Island was that of Policarpo Toro who, before the annexation of 1888, "sold" the island to Chilean legislators as a tropical paradise; a source of commercial agricultural produce; a valuable future naval base because of its good harbours; and as having an excellent commercial position on the (forthcoming) Pan-

ama-Australia shipping route. Not only was Toro wrong (or lying?) on all counts, but even the more recent emphases on remoteness and mystery are largely erroneous conceptions.

**Erika Radewagen**

***Samoa's Past for Samoa's Future: Thoughts on Preserving and Presenting Samoan Heritage***

Samoaan prehistory and Samoaan history have generally been topics of research for non-Samoans. This paper attempts to explore the role that Samoaan prehistory and history play in the lives of Samoans, "off-island" Samoans, and those individuals of Samoaan descent.

**Ana-María Rojas Z. and Silvia Paola Moreno M. (Santiago de Chile)**

***Rapa Nui Textiles: An Approach for the Conservation of this Easter Island Heritage***

The ancient Rapa Nui culture from Easter Island developed some unique textile objects based on vegetable and/or organic materials. However, this perishable heritage and its manufacturing tradition, now nearly extinct, has been poorly studied to date. To remedy this situation a careful survey of all pieces in our country (Chile), both in private collections and in Museums, is being carried out to register all the existing pieces. Based on the condition reports that are being developed for each piece, preventive conservation measures can be established for the various collections. Finally, the survey will serve to prepare a Conservation Manual specially addressed to guide those responsible for the preservation of this important heritage as well as to help preserve the traditions of the Rapanui community.

**Donald P. Ryan (Pacific Lutheran University)**

***A Re-evaluation of Some Aberrant Art from Rapa Nui***

During its stay on Easter Island in 1955/56, the Norwegian Archaeological Expedition was able to collect several hundred curious stone sculptures from caves and other private sources. In the decades since, these carvings have been generally ignored or assumed to be freshly mass-produced. In this paper, data concerning these enigmatic objects will be presented in order to address questions regarding their origins, meaning and date.

**Christophe Sand (Département Archéologie, New Caledonia)**

***The Southern End: Lapita Developments and Changes in New Caledonia and their Regional Significance***

This paper presents the characteristics of Lapita settlement, expansion and transformation in Southern Melanesia, focusing on the data obtained for New Caledonia. Entering a region of complex geological landforms, and devoid of malaria, the Austronesian colonists discovering the south point of the Melanesian chain developed specific trends in the Lapita Cultural Complex, producing a specific Southern Province, different from the Far Western, Western and Eastern Lapita Provinces. The first part of the paper will present a general background of the Lapita period in New Caledonia, focusing on chronology, geographical spread and the major characteristics of the postulated Southern Province. This will identify the developments internal to the Lapita period of New Caledonia, for comparison with the other Provinces of the region in the second part of the paper. Discussion will point to sources of cultural origin, rate of first settlement and internal local transformations, environmental impact and economic characteristics, local relations between the islands, and finally the demise of Lapita and its regional significance.

**Masaaki Sawada, Takayasu Koezuka, Saihachi Inoue (Nara National Cultural Properties Research Institute) and Mónica Bahamóndez (Centro Nacional de Conservación y Restauración, Chile)**

***In-Situ Weathering Tests of Conservation Materials Applied to Volcanic Tuff Samples from Easter Island***

The reconstruction of Ahu Tongariki on Easter Island was completed in 1994. All of the fifteen stone statues of this ahu were re-erected in their original position. These heavily deteriorated statues may require consolidation to strengthen the stone, a local volcanic tuff. To determine the best approach, samples of this stone from the Rano Raraku quarry were collected for testing different consolidating and/or water-repellent materials. The consolidating materials are based on silicic acid esters while the water-repellent agents are based on monomeric alkyl silanes or acrylic resins. Sets of specimens were treated and the weathering test, started in 1998, is now underway and will be completed by 2002. Specimens are being analyzed at regular intervals to determine changes in the products applied as well as the effectiveness in protecting the stone from deterioration.

**Joan S. Schneider (University of California, Riverside)**

***Sourcing Basalt Processing Tools – Recent Efforts in the Middle East as an Analog for the Pacific***

One of the archaeological problems that has gone unanswered in the Levant is the origin of the stone from which many basalt milling implements and vessels were made, as well as the location of the production workshops. The search for the quarries and workshops for both the simple and elaborate tools that are characteristic of early-through-historical periods is in the preliminary stages. From a methodological standpoint, the search has included thin-section petrography and K/Ar dating in order to focus more specifically the search within the very extensive volcanic fields of northern Israel, Jordan, and Syria. The Pacific region may find this approach productive for inter-island sourcing of artifacts.

**W. Wilfried Schuhmacher (Denmark)**

***Paul Gauguin: Good Painter – Poor Linguist***

During his stay in French Polynesia (1891-93 and 1895-1901 in Tahiti, and 1901-03 in the Marquesas), Paul Gauguin (1848-1903) created about 100 paintings. He gave most of them Tahitian titles. An error analysis of these texts is presented.

**Pascal Sellier (Université Bordeaux, France)**

***Burial Practices of Ancient Marquesas Islanders: Excavations at Manihina, Ua Huka Island***

Burials are a major source of information for the reconstruction of ancient Marquesan social life because the time span for ethnographic observations was very short, particularly for the Northern Marquesan Islands. Manihini, on the southern coast of Ua Huka, is a coastal dune site where three seasons of excavations have taken place. The last one focused on funerary practices, revealing Manihina as a major burial site. Around 40 human burials of both sexes and all age groups, including a pregnant woman, were found. Also excavated were a dozen pig and two dog burials. This paper focuses on the archaeo-osteological evidence for the reconstruction funerary practices at Manihina's burial site. Mortuary features include individual primary burials in flexed or extended position; osteological evidence for the use of coffins (some canoe shaped); temporary mummification; and secondary burials. One exceptional example of a secondary coffin burial is a complete but dislocated skeleton of a high ranking old man.

**Yosihiko Sinoto (Bishop Museum, Honolulu)**

***Planning and Execution of Archaeological Sites: A Case Study of Marae Restorations in the Society Islands***

Pursuant to the initial restoration program of *marae* (religious temples) in the Society Islands initiated in 1967 by Alexander M. Ata, the Bishop Museum undertook a three-year restoration program during 1967 and 1969 on the islands of Mo'orea, Huahine, Raiatea, and Borabora. *Marae* restoration continues today on Huahine. The municipality of Maeva (Huahine) will be designated a natural and cultural preserve by the Government of Tahiti, probably this year. Accordingly, the government allocated a large sum of funds for further restoration of *marae* in Maeva. The Department of Archaeology of the Government of Tahiti conducted some restoration work in 1998-99, but failed to follow some fundamental historic preservation principles, thus this effort resulted in a very poor example of archaeological restoration. Having been involved in overseeing the bulk of the *marae* restoration in Tahiti since its inception, I wish to share pertinent aspects of the planning and implementation that will facilitate the successful execution of a restoration program in other regions of the Pacific.

**Chuck Kawai'olu Souza (Kapi'olani Community College, Honolulu)**

***Hawaiian Art: Not Dead, Just Changed***

Although hula, Hawaiian music, and the Hawaiian language have always been acknowledged as being continuous despite the huge changes to the people and the culture over the last two hundred years, Hawaiian art, or what Western scholars have determined to be Hawaiian art, was given up for dead. Although the context for art production has changed, Hawaiians continue to have an art tradition. Carving, plaiting, feather-work, and kapa are still produced but a new generation of Hawaiian artists has come forth to combine cultural imagery and meaning with contemporary materials and techniques. This is an art that holds onto its past, challenges the present, and prepares for the future. No longer willing to let others define who they are or the direction they should take, this outlook has also taken hold in the attitudes of Maori, Tahitian, Samoan, and in the homelands of many other indigenous peoples throughout the Pacific. In this paper, I will discuss some of the historical, social, and political groundwork that has given rise to the desire for self-determination and autonomy in cultural and artistic characterization.

**Matthew Spriggs (Australian National University)**

***Is There Life after Lapita: the Post-Lapita Sequences of the Western Pacific***

Recent archaeological work in PNG, Solomons, Vanuatu, New Caledonia, Fiji and Tonga has clarified the nature of the cultural sequences immediately post-Lapita, and has shown that changes in material culture, particularly pottery, occurred "in step" across a large area of the Western Pacific, with different places dropping out of (and sometimes dropping in again) the continuing regional interaction sphere over time. It was not until about 1500 years ago that the current diversity of cultures in the region becomes apparent. What it was that actually continued post-Lapita will be pondered.

**Vincent H. Stefan (University of New Mexico)**

***Origin and Evolution of the Rapanui of Easter Island***

The origin, migration and evolution of Polynesian populations, in particular the Rapanui (Easter Islanders), have been the center of controversy for many years. Archaeological, linguistic and genetic/serological data have played instrumental roles towards resolving these disputes thus far. Recently, physical anthropological investigations have been contributing to the understanding of Polynesian prehistory. Several models have been developed which have addressed the origins of the prehistoric population that colonized Rapa Nui. Examination of prehistoric Rapanui crania, along with prehistoric crania of other east Polynesian islands (Gambier Islands; Hawai'i - O'ahu; Marquesas Islands; Society Islands, Mo'orea, Tahiti, and Huahine; Tuamotu Archipelago), and coastal Peru, have shed light on the physical anthropology of east Polynesia. Analyses of the craniometric data indicate that the prehistoric Rapanui had the strongest affinities with the Gambier Islands population, followed closely by the Tuamotu Archipelago population. The Rapanui and east Polynesian data exhibited patterns of biological variation indicative of the micro-evolutionary processes of genetic drift and gene flow. Though the colonizing population of Rapa Nui remained relatively isolated, slight levels of migration with neighboring islands was indicated. This study identifies a probable



place of origin of the prehistoric Rapanui and the evolutionary forces that produced their uniqueness.

**Christopher M. Stevenson (Virginia Department of Historic Resources), Joan Wozniak (University of Oregon) and Sonia Haoa (Rapa Nui)**

***Early Agricultural Field Systems on Rapa Nui***

It has been hypothesized that lithic mulching of agricultural fields on Rapa Nui was a late innovation developing around AD 1400. This technology was introduced to raise agricultural productivity in a moisture-limited environment so that a surplus could be produced. Test excavations were placed in a variety of garden locations within the La Pérouse area during 1999 to investigate the geomorphological context of the gardens and to determine the ages of cultivation. The results of these investigations and their implications for Rapa Nui pre-history are discussed.

**Karen Stevenson (University of Canterbury, New Zealand)**

***Pacific Women: Challenging the Boundaries of Tradition***

The art of Pacific women—bark cloth, mats, jewelry, costume/clothing, and *tivaevae*—has traditionally been designated as craft. Today, however, this label is not only challenged by the art/craft debate; it is both denounced and expanded upon by contemporary Pacific women artists. Women of the Pacific have always been the purveyors of cultural values and have also been the makers of economic wealth. Their arts, seen as *taonga*, or valued items, were essential to the socio-economic and political arenas of their lives. These *taonga*, however, were not afforded equitable value and recognition when introduced to the Western world. Their importance as gift, let alone their cultural significance, was overlooked, and labeled as mere “artificial curiosities”. Within these basic facts, essential issues of cultural, political, and artistic significance are found, intertwined with histories of colonization and migration that have impacted on the myths and realities of the Pacific. Scholarship about women’s traditional art forms is scant. This paper will look at these issues in Aotearoa/New Zealand. Key to this discussion is the reinterpretation of traditional artforms used by contemporary Pacific women, as a practice drawing upon and moving beyond the boundaries of tradition.

**Thomas Keali‘iahonui Stone III (Hawai‘i)**

***He‘ehölua: The Revitalization of a Cultural Practice***

*He‘ehölua* is a ritualized form of athleticism that took place over 150 years ago on carefully constructed stone ramp ways in the shadow of active volcanoes and under the aegis of fierce gods. This is a native descriptive interpretation of the living landscape relative to the constructing and riding of the *papahölua*, and the unique relationship *hölua* has with the indigenous people of Hawai‘i and Polynesia.

**Epifania Suafo‘a (National Park of American Samoa)**

***Archaeological Sites in the National Park of American Samoa***

Occupation of the Samoan archipelago dates back as much as 3,000 years BP. There is ongoing archaeological research in the National Park of American Samoa that has identified star mounds, quarries, habitation sites and graves. This paper examines sites that are located at the 200 through 1600 foot elevation of mountain ridges on the islands of Tutuila and Manu‘a. Curiously, these sites are older than sites located on the Coastal areas in Samoa.

**Glenn R. Summerhayes (Australian National University)**

***Lapita in the Far West: Recent Developments***

The Bismarck Archipelago, often called the Lapita homeland, contains the earliest Lapita settlements in the Pacific. It is from this area that Austronesian settlers set out to colonize Remote Oceania for the first time in the late 4th millennium BP. Recent research on Lapita pottery assemblages from the Bismarck Archipelago has shed new light on the nature of interaction between these early Austronesian settlements. The results of this research along with the results of recent fieldwork on Lapita settlements undertaken on Anir, New Ireland province, will be examined.

**Jehanne Teilhet-Fisk (Florida State University)**

***Hands Across the Pacific: the Maori Presence in the Works of a Navajo Artist***

This paper will explore the Maori presence in the works of a Navajo printmaker. In 1995, Melanie Yazzie (Navajo/Dine) traveled with a group of forty-five Native American artists to Aotearoa (New Zealand). They were invited by the Maori to create art, share insights about the creative process and learn about each others’ traditional cultures and how they were and are sustained in art and practice. According to Yazzie, “...the experience was amazing! We made art day and night under a big tent outside the marae.” Yazzie adds that she had no idea “that it would effect my work and mind as much as it has.” Informed with a sophisticated postmodern sensibility and post-colonial constructs, indigenous American Indian artists such as Yazzie are actively “bridging” or “border crossing” with other aboriginal cultures in the Pacific, reaching out as artists to engage in critical dialogue about the struggle for artistic self-determination, the role of spirituality in indigenous art, and the place of their respective art forms in modern and contemporary art history. But as a “border crosser” Yazzie also must be sensitive to Maori protocol, spirituality and her use of their visual icons and verbal traditions. The paper addresses the ways her initial exchange with Maori artists and subsequent trips as a visiting artist continues to impact her mind and work.

**Cynthia L. Van Gilder (University of California, Berkeley)**

***Gender and Household Archaeology in Kahikinui, Maui***

It is well documented that at the time of European Contact, gender was one of the most important structuring principles in Hawaiian society. Formal rules appear to have governed a separation of certain daily activities, such as cooking and eating, and the spaces in which they occurred. Household excavations on Maui give us the opportunity to explore local, non-elite manifestations of the kapu system, as well as gain insight into how individual social identities were expressed in the context of this very status and gender conscious culture.

**Pierre Verin, Université Française du Pacifique**

***Problems with Marae Reconstruction in French Polynesia***

A great interest in old Polynesian culture has developed in French Polynesia for the last 30 years. Stone remains became a critical challenge for creating sites for cultural activities. Some have artificially re-invented structures for tourist purposes such as in Haapiti, Mo'orea. But others, in Rurutu, have been reconstructed in a very awkward manner: such as Poreopii in Naairoa, and also Uramoa in Peva, the highlight of Pevan dynasty. Therefore the original types to which they belong became unrecognizable. The first attempt to reconstruct a marae in French Polynesia was carried out at Arahurahu in Paea, before 1960, under the auspices of the Société des Études Océaniques. The choice of the site was carefully made and so was the technique of reconstruction. This attempt has not been imitated in Huahine where the local archaeologist from Tahiti has developed a technique of reshaping the structures, modifying the shapes and even inventing the stratigraphy. Even in Vaitara on Rurutu, the most famous council platforms are altered by transformation of the structures into private gardens. This contribution will try to demonstrate how old information can be reused to invent parameters of a neo-culture.

**Richard Walter (University of Otago)**

***The Role of Material Culture in the Study of Polynesian Colonization***

Historically, the distribution of artifact traits has played a central role in cultural historical reconstruction, including questions relating to colonization. In Polynesia, however, seriation and distributional analyses, the major tools of cultural history, have met with mixed success. The reasons for this include problems arising from a relatively short chronology, a limited range of artifact classes available to archaeological inquiry and poor stratigraphic control over some of the potentially useful items. This paper reviews the role of material culture in Polynesian colonization studies and discusses some potentially useful areas of investigation.

**Scott S. Williams (Ogden Environmental and Energy Services Co., Inc., Oregon)**

***Unknown Hawai'i: Traditional Use of Interior Areas***

Much archaeological research in Hawai'i has focused on the coastal settlements and upland agricultural areas. This is not surprising, given what is known of traditional Hawaiian settlement patterns: most habitation areas were near the coast to take advantage of marine resources, or were located in upland areas suitable for agriculture and still relatively close to the coast (within 10-15 km). These are the locales most populated today, and much of the CRM-mandated archaeological work of the last 30 years has been conducted in such areas. Yet the ethnographic and archaeological data collected primarily during CRM investigations for military agencies indicate there were sizable occupations of far inland areas, such as the central plateau areas of O'ahu and Hawai'i Island. The archaeological evidence for some of these areas are examined, and their significance for understanding Hawaiian prehistory are discussed.

**Paul Wallin (The Kon-Tiki Museum, Norway)**

***The Times they are A-changing: Some Ideas on Change in the Marae Structures in the Society Islands***

This paper deals with questions concerning stability and change within the Society Islands chiefdom. These aspects will be discussed with a starting point in the ceremonial stone structures, the *marae*. Central for the interpretation of these material remains are questions regarding how ideology and actions shaped the material culture. To conduct an archaeological study of variations and similarities within and between different *marae*, they had to be systematically divided. Therefore the archaeological methodology, and some basic principles used in defining variables and types also will be illuminated.

**David J. Welch (International Archaeological Research Institute, Hawai'i)**

***Early Upland Expansion of Palauan Settlement***

Recent archaeological investigations on the islands of Babeldaob and Koror in Palau have revealed archaeological sites and subsurface cultural deposits that date earlier than the previously accepted age for human colonization (ca. 2000 BP). Earlier research focused on prominent late first and second millennium AD sites, such as the traditional villages, the Rock Island villages, and the massive earthen terraces of Babeldaob. Further explorations of traditional villages and terraces and of a variety of other contexts have revealed evidence of landscape modifications and a range of site types not previously recognized, with associated radiocarbon dates between 3500 and 1500 BP. These include earlier upland agricultural fields beneath more recently constructed terraces, cave burials sometimes associated with distinctive early styles of pottery, hilltop fortified sites with deep ring ditches, and stone platform constructions on ridgeline terraces. While the research has yet to find evidence for the early phase of colonization (though it is clearly reflected in the paleoenvironmental record), it has yielded data that can form the basis for developing a model of the subsequent period of early human expansion into the upland of Babeldaob.

**J. Peter White (University of Sydney, Australia)**

***Fauna: More than Just Food***

As part of Pacific colonization, animals of all kinds were used for a variety of purposes, ranging from food to status. Some were local, some were translocated, either intentionally or inadvertently. All aspects of their use depended on human social decisions, which could have unforeseen environmental consequences. Faunal analysis can therefore provide direct or proxy evidence about almost every aspect of the prehistoric Pacific: it depends on our questions and their theoretical context.

**Stephen Wickler (Tromsø University Museum, Norway)**

***Patterns of Early Land Use and Settlement in Palau and Implications for the Colonization of Western Micronesia***

Recent paleoenvironmental coring results from the island of Babeldaob in Palau provide a strong case for human colonization by 4500 BP based on the presence of pollen from introduced swamp taro (*Cyrtosperma chamissonis*). Savanna indicators and charcoal particles appear in core sediments dated several centuries later. The earliest direct evidence for settlement from archaeological contexts does not appear until about 3400 BP. This gap of over one thousand years is likely to reflect the gradual expansion of a small founding population on a large volcanic island where early sites are scarce and difficult to locate. Potential patterns of landscape use and settlement during the first millennium following colonization are examined including aspects of subsistence, early site location, and the effects of landscape transformation on site visibility. Strategies for future archaeological research targeting early settlement in Palau are proposed and evaluated. Finally, the implications of evidence for settlement in Palau several millennia earlier than previously documented for colonization elsewhere in western Micronesia is appraised.

**Janet M. Wilmschurst and Matt S. McGlone (Landcare Research, New Zealand)**

***Bracken Fern and the Divergent Chronologies of Polynesian Settlement in New Zealand***

At the time of European contact in New Zealand, bracken fern (*Pteridium esculentum*) was a dominant landcover throughout the settled areas, and over extensive areas in the fire-affected hinterlands. Until the 12<sup>th</sup> century, bracken spores are recorded only sporadically in the forest dominated post-glacial pollen records of New Zealand. After this time, palynological records throughout the country show an abrupt and sustained rise of bracken spores in association with charcoal fragments and a rapid decline of pollen from tall forest species. This deforestation event has been widely interpreted as indicating Polynesian settlement. The timing coincides with the earliest dated archaeological artefacts and palaeo-faunal extinction. However, sporadic or anomalous occurrences of bracken spores in pollen records before the 12<sup>th</sup> century have been interpreted as deriving from an earlier settlement of New Zealand, despite the absence of supporting archaeological evidence. We argue for a more conservative interpretation, based on bracken ecology, its response to spatial pattern and frequency of fire, and the behaviour and preservation of its spores in the sediment record.

**Joan Wozniak (University of Oregon)**

***Horticultural Practices on Easter Island –Lithic Mulched Gardens***

During an archaeological survey on Easter Island, numerous household gardens were located, and have been named "lithic mulch gardens". These gardens consist of a mulch of small rocks and this type of gardening was a common technique on Easter Island in prehistoric times to increase food production. Lithic mulch forms a surface cover that helps retain soil moisture and provides a deterrent to soil erosion from constant wind and intermittent deluges. The prehistoric use of lithic mulch was important if not essential in the successful cultivation of tropically derived cultigens in the seasonally dry subtropical environment in order to feed the large populations living on Easter Island prior to European contact.

**For those who have not yet registered for Pacific 2000, it is NOW  
time to send in your registration for the conference!**

**The registration cost goes up on 1 July.**

**There is still space available for some of the special events;  
he who hesitates, loses!**